



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/652,773	08/31/2000	Eric A. Jacobsen	884.313US1	4550
21186	7590	07/28/2006	EXAMINER	
SCHWEGMAN, LUNDBERG, WOESSNER & KLUTH, P.A. P.O. BOX 2938 MINNEAPOLIS, MN 55402			D'AGOSTA, STEPHEN M	
			ART UNIT	PAPER NUMBER
			2617	

DATE MAILED: 07/28/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/652,773	JACOBSEN, ERIC A.	
	Examiner	Art Unit	
	Stephen M. D'Agosta	2617	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
 - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
 - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 June 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3-17,20-23,25-29 and 31-33 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1,3-15,22,23,25-29 and 31-33 is/are allowed.
- 6) ☒ Claim(s) 16,17,20 and 21 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|----------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

A new rejection is found for certain claims regarding the amendment received on 6-23-2006.

The examiner notes that Song (US 5,208,756) teaches Federal Regulations on maximum transmitted power for an RF system (which is well known in the art):

"..In the United States, the Federal Communications Commission (FCC) limits the maximum power of a carrier signal transmitted from the base station of a cellular telephone network to 500 watts (57 dbm). Generally, however, the actual power of transmission is considerably less, e.g., less than 100 watts (50 dbm), in order to avoid interference between base stations. In most cellular networks, the power of transmission of the control channels for each base station is higher than the power of transmission of the voice channels.." (C6, L46-55)

The examiner did NOT add this reference to his rejection since he believes this concept to be well known and inherently understood by all RF equipment manufacturers. It is merely cited here as "pertinent art" but the examiner will add it to his rejection (and still go Final since he claims it is inherent) if this point is argued.

Information Disclosure Statement

The IDS received 7-25-2006 has been reviewed and signed.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 16, and 20-21 rejected under 35 USC 103(a) as being unpatentable over Daniel et al. U.S. Patent 6,075,484 in view of Yun U.S. Patent 6,463,295 and Keskitalo et al. US 6,345,188 (hereafter referred to as Daniel, Yun and Keskitalo).

As per **claim 16**, Daniel teaches a method for use in wirelessly transmitting a communication signal to a remote location, said method comprising:

determining a direction of said remote location (figure 3, #340);

generating a transmit antenna beam in the direction of said remote location using phased array principles (A transmit beamformer to generate a transmit beam in the direction of the remote transceiver (figure 3, #330) [eg. using well known phased array principles as disclosed by the applicant in the specification page 5, L9-18]);

but is silent on determining a parameter related to an antenna gain associated with said transmit antenna beam; and

using said antenna gain related parameter to adjust a power level of a transmit signal to be transmitted to said remote location via said transmit antenna beam to maximize said power level while not exceeding mandated transmit power limits.

First and foremost, the examiner notes that it is well known (and inherent) for any/all RF systems to comply with local/federal transmit power limits, hence Daniel's system must inherently comply with the RF standards to which it supports (and/or would support in a USC 103 combined design).

Yun teaches power control (figure 7a, #703 and #711 which inherently requires power control hardware) for a communication station with a multiple antenna array (abstract, figures 8a, 9 and C1, L24-50). The examiner interprets that Yun's power controller will be "limited" between a federally regulated range of transmit power

min/maxs. It would have been obvious to one of ordinary skill in the art at the time of applicant's invention to modify Daniel, such that power control is supported for a multi-array antenna, to provide control of RF power output for optimal transmission of the RF signal and decrease interference with other transmitters in the area.

Keskitalo teaches an apparatus/method for steering a multi-array antenna signal in such a way that the gain from the antenna array is greatest in a specified direction (abstract, figures 3-9 and C1, L10 to C2, L65). It would have been obvious to one of ordinary skill in the art at the time of applicant's invention to modify Daniel in view of Yun, such that wireless transmission for an antenna array with power control also uses antenna array gain parameters to steer the beam in a certain direction, to provide optimal RF communication based on steering the array, antenna gain and power control parameters.

As per **claim 20**, Daniel in view of Yun and Keskitalo teaches claim 16 further comprising an array of receive antenna elements that are arranged in a predetermined pattern for use in receiving a signal from the remote transceiver wherein said DDU includes means for analyzing signal portions received by individual antenna elements within said array of receive elements to determine the direction of the remote transceiver (figure 3, two #312 elements are receive antennas and #340 is the DDU).

As per **claim 21**, Daniel in view of Yun and Keskitalo teaches claim 16 and the system appears to be located at a ground station (figure 1, #120, #130, #140, #170, #180) shows the system communicating with a satellite) [eg. perform calculations from a single indoor location]

Claim 17 rejected under 35 U.S.C. 103(a) as being unpatentable over Daniel/Yun/Keskitalo and further in view of Roddy et al. U.S. Patent 6,127,740 (hereafter referred to as Roddy).

As per **claim 17**, Daniel in view of Yun and Keskitalo teaches claim 16 **but is silent on** further comprising a duty cycle unit to determine average transmit duty cycle over a predetermined time and to deliver said average transmit duty cycle information to the PCU to adjust transmit power level of said system.

Roddy teaches a controller that determines the average duty cycle of the desired transmitted signal. The carrier frequency of the intended transmission, which preferably is previously preprogrammed into the controller is then utilized with the determined average duty cycle and the other fixed values and offsets to determine a proper power control signal duty cycle for adjusting the signal strength of the transmitted signal. Determining the necessary characteristics of the power control signal is accomplished, in one example, by utilizing a pre-stored look up table that is programmed into a memory portion of the controller. In another example, mathematical formulas are utilized by the controller to determine the duty cycle of the power control signal based upon the determined signal and circuit factors (C4, L44-62).

It would have been obvious to one skilled in the art at the time of the invention to modify Daniel in view of Yun and Keskitalo, such that a duty cycle unit is used to determine average transmit duty cycle, to provide means for the PCU to adjust transmit power level as needed for optimal wireless transmission/reception.

Allowable Subject Matter

Claims 1, 3-15, 22-23, 25-29 and 31-33 allowed.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

1. Song US 5,208,756.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stephen M. D'Agosta whose telephone number is 571-272-7862. The examiner can normally be reached on M-F, 8am to 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bill Trost can be reached on 571-272-7872. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

STEVE M. D'AGOSTA
PRIMARY EXAMINER

[Signature]
7-25-06